

paper at his end and also, through the operation of the relay D, shifts that at the receiving end. At the same time the pen B returns to the ink bath and takes a fresh supply of ink: the ink bath is not shown in Fig. 2, but can be seen, with the pen resting in it, in Fig. 1 in front of the

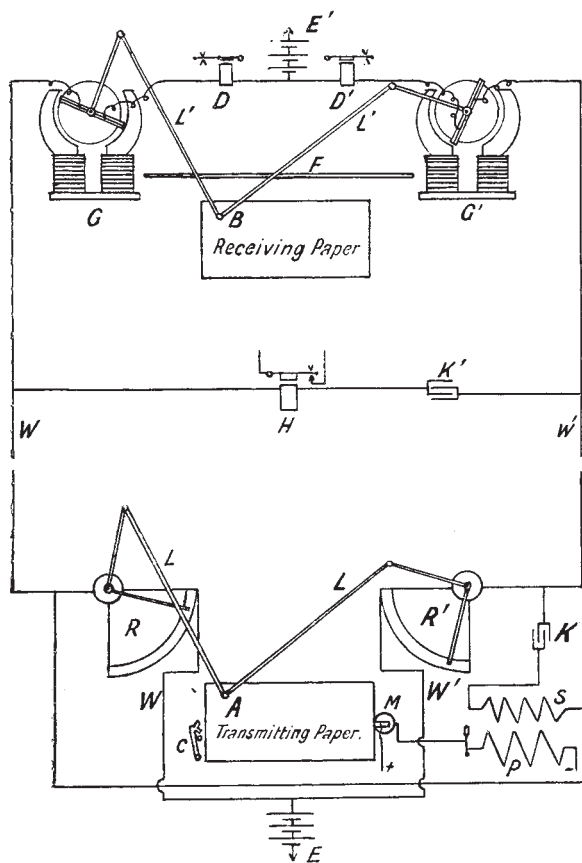


FIG. 2.—Diagram of telautograph connections.

galvanometer on the left. The pen, which is shaped like a small pipe, the bowl being a reservoir for the ink, holds sufficient ink to cover the amount of paper exposed at one time. The relay D' controls a local bell circuit and is used for ringing up. Neither the connections of this bell circuit nor of the paper shifting magnet are shown in Fig. 2, the relays only being shown in order to avoid unnecessary complication.

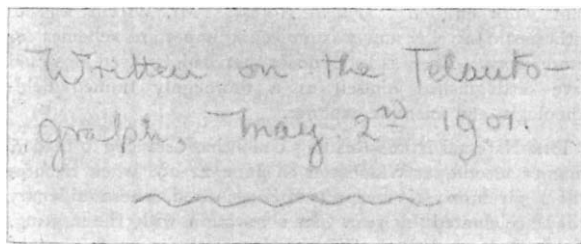


FIG. 3.—Transmitted message.

A specimen of the writing transmitted by the telautograph is shown in Figs. 3 and 4. Fig. 3 shows the words as written in pencil at the transmitting end, and Fig. 4 as received at the far end. These words were transmitted over an artificial line nearly 300 miles long; it will be

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seen that although the writing is somewhat distorted it does not lose its character and is indeed a very fair reproduction. The words were written on the first telautograph that Mr. Ritchie has constructed; in future instruments it is to be expected that the reproduction will be even more accurate, as several improvements in detail have been introduced, but it must be admitted that the performance of the present apparatus leaves little to be desired. There is no difficulty in writing, in spite of the pencil being attached to the rheostats and having to move

Written on the Telautograph, May 2nd 1901.

FIG. 4.—Received message.

them; everything seems to move very freely and it is almost as easy to write as with an ordinary pen. Moreover, as long as the paper is not shifted, the writer can go back and make alterations and additions with perfect accuracy.

We are much indebted to the Telautograph Co. for allowing us to examine the instrument, and to Mr. Foster Ritchie for very kindly explaining to us the details of its construction.

NOTES.

MR. BALFOUR has often pleaded for the increase of facilities for scientific research, and has pointed out how, in this respect, our country compares unfavourably with some others. The festival dinner of the Medical Graduates' College and Polyclinic, on May 22, gave him another opportunity to remind the public of existing deficiencies and the duties of wealthy citizens towards them. As purely scientific research can never be self-supporting, and as, moreover, every addition to knowledge is of value, it has peculiar claims upon the public and the nation. How small, comparatively, is the response to these claims is known to all of us. Here science is tolerated but it cannot be said to be encouraged; and this because the people who have the means to further scientific interests are not in sympathy with them. The State leaves the adequate provision for scientific research to private benevolence, but liberal benefactions are few and far between, so work which would be done here if means were available is left to other nations. Many men of science spend their private incomes to carry on investigations which elsewhere would be afforded generous support, and they often have to leave work unfinished because such assistance is not forthcoming. "I do not believe," said Mr. Balfour, "that any man who looks round the equipment of our universities or medical schools, or other places of education, can honestly say in his heart that we have done enough to equip research with all the costly armoury which research must have in these modern days. We, the richest country in the world, lag behind Germany, France, Switzerland, and Italy. Is it not disgraceful? Are we too poor or are we too stupid? Do we lack the imagination required to show what these apparently remote and abstract studies do for the happiness of mankind? We can appreciate that which obviously and directly ministers to human advancement and facility, but seem, somehow or another, to be deficient in that higher form of imagination, in that longer sight, which sees in studies which have no obvious, necessary or immediate result the foundation of the knowledge which shall give far greater happiness to mankind than any immediate, material, industrial advancement can possibly do; and I fear, and greatly fear, that, lacking that

imagination, we have allowed ourselves to lag in the glorious race run now by civilised countries in pursuit of knowledge, and we have permitted ourselves to far too large an extent to depend upon others for those additions to our knowledge which surely we might have made for ourselves." Unfortunately there seems little hope of improvement in this depressing condition of affairs. We would ask, however, how comes it that the members of the Government, knowing the position of things and expressing belief in the salvation of the nation through science, neglects to take up the responsibilities which are overlooked by private benefactors? If we have to look to private sources for the provision for scientific research furnished by the State in other countries, the outlook is not encouraging to contemplate. We lag behind other nations now; and, applying the natural law to the political world, steady progress in the growth of scientific knowledge will only be possible when the conditions for development are made more favourable than they are at present.

THE annual visitation of the Royal Observatory, Greenwich, will be held on Saturday, June 1.

AT the annual meeting of the Institution of Electrical Engineers to be held this evening, an illuminated address received from the American Institute of Electrical Engineers will be presented. The address has been sent as an expression of thanks for courtesies extended to members of the American Institute during their visit to London last year, and in connection with the joint meeting at Paris. It is a pleasant token of the cordial relationship existing between British and American electrical engineers, and the feeling which prompted the resolutions embodied in the address will doubtless be much appreciated.

THE success of the visit of members of the Institution of Electrical Engineers to Switzerland in 1899 has led to arrangements being made for a visit to Germany next month. There will be three parties, one visiting Berlin only, another visiting Berlin and Dresden, and a third visiting Berlin, Dresden, Nuremberg, Frankfurt-a-Main and other places. The whole party will leave London on Saturday, June 22, and upon their arrival at Hanover on Sunday evening will be entertained at dinner by the town authorities. At Berlin, in addition to visits to works, a visit will be paid to the Technical High School, where Prof. Slaby will show the college to the members. Several dinners and receptions will be given to the visitors in Berlin and elsewhere by electro-technical societies and other bodies. Ladies may accompany the members, and the visit promises to be pleasant and profitable to all who take part in it.

As may well be imagined from the wealth of blossoms now to be seen in our gardens, the flowers exhibited at the Temple Show of the Royal Horticultural Society last week were very fine. Those, however, who looked for novelties met, for the most part, with disappointment. There was nothing of startling popular interest or of extraordinary scientific significance, while new garden plants were not very notable and seemed few and far between. Mr. H. J. Elwes, F.R.S., showed *Cypripedium guttata* in bloom, a plant which he obtained a year or two ago on the Altai Mountains. Its habitat was in a dense forest that was almost impenetrable. The markings on the perianth were of a very pleasing red, and the specimens did credit to their treatment, which included their being kept on ice during the winter. The series of insectivorous plants hard by, sent by Mr. A. J. Bruce, of Chorlton-cum-Hardy, was very fine, and the Sarracenias may be particularly mentioned. One flippant visitor likened the leaves of some to steamboat ventilators which had been twisted. A similar collection belonging to Mr. R. R. J. Measures was also worthy of careful examination. Very suggestive of the balance that must be maintained between roots and foliage were the trees artificially dwarfed by the

Japanese. These were quite plentiful, being exhibited by professional and amateur horticulturists alike. Here the skilful grower has so limited the root system and so cunningly reduced the number of leaves that, practically speaking, only sufficient food is manufactured to maintain the plant in health, there being hardly any surplus to provide the material necessary if growth is to continue. It does continue, but so slowly that we may not get a tree more than two feet high after three hundred years have passed over its head.

In recent years there has been much progress in the processes of preparing sulphur for use in the prevention of diseases of plants, and the demand, in consequence, has greatly increased. The methods actually employed for estimating the quality of these preparations are, however, now out of date and leave much to be desired, especially as regards the mixtures of sulphur and copper sulphate. With the view to encourage special studies on this subject, the Federation of the Agricultural Unions of Italy, together with the Agricultural Unions of Padua and Florence, has therefore decided to open an International Prize Competition for the sum of 1000 francs in gold, to be awarded to the person who discovers and makes public the best method for obtaining exact and trustworthy results in the determination of the quality of flowers of sulphur and of mixtures of sulphur and copper sulphate. Competitors must send in their papers in a sealed envelope to the head office of the Federation (Ufficio direttivo della Federazione italiana dei Consorzi agrari, Piacenza, Italy) before March 1, 1902. The papers will be examined by a special commission to be named by the Reale Accademia dei Lincei, Rome.

ALL those who knew Mr. Anthony Wilkin will regret to learn that he died of dysentery in Cairo, in the twenty-fourth year of his age, on May 17. In his early undergraduate days Wilkin published a bright little book, "On the Nile with a Camera," and while still an undergraduate he accompanied the Cambridge Anthropological Expedition to Torres Straits and New Guinea. His historical and sociological studies in Cambridge prepared him for the investigations he made on the land tenure, laws of inheritance and other social questions. He also made notes on the various kinds of habitations in the districts he visited. All these observations will be duly published in the Reports of the Expedition. Immediately after his first winter's digging in Egypt with Prof. Flinders Petrie, he went with Mr. D. Randall-Maciver to Algeria to study the problem of the supposed relationship, actual or cultural, of the Berbers with the ancient Egyptians. An interesting exhibition of the objects then collected was displayed at the Anthropological Institute in the summer, and later on in the year Wilkin published a well-written and richly illustrated popular account of their experiences entitled "Among the Berbers of Algeria." Quite recently the scientific results were published in a sumptuously illustrated joint work entitled "Lybian Notes." Mr. Wilkin was an enthusiastic traveller and was projecting important schemes for future work. There is little doubt that had he lived he would have distinguished himself as a thoroughly trained field-ethnologist and scientific explorer.

THE National Home-Reading Union has arranged to hold a summer meeting at Winchester on June 22-29, when lectures will be given on various aspects of King Alfred, whose millenary will be celebrated this year. In connection with the meeting, Mr. J. E. Marr, F.R.S., will give four lectures on "The Application of Geology to Scenery," a secondary purpose of the meeting being the study of the geology and botany of the district as well as its archæology.

THE Simla correspondent of the *Times* reports that the Secretary of State has sanctioned a scheme for an ethnographical survey of British India in accordance with the suggestions made

in 1900 by the British Association. The work will be done by civil officers in addition to their own duties, Mr. Risley being appointed director of ethnography. The annual expenditure will be 40,000 rupees, and the total cost is estimated at 1½ lakhs, excluding the cost of printing. The Government hope that ethnologists and scientific societies in Europe and America will assist the director with advice, refer to him the points they desire to make the subject of inquiry in India, and supply him with copies of publications bearing on the researches about to be undertaken during the next four years.

THE third series of trials of motor vehicles for heavy traffic is arranged to take place in Liverpool and neighbourhood during the five days commencing Monday, June 3. Referring to the results of previous trials, the *Times* points out that in 1898 the wheels of the four competing vehicles proved structurally defective when subjected to the hammering action of granite sets and cobble sets, whilst minor troubles arose in respect to adhesion and with the condensers, &c. The second trials, which took place in 1899, provided satisfactory evidence that the tire and adhesion difficulties had been overcome, for none of the wheels gave the smallest trouble, and five out of six of the competing vehicles in the hill-climbing tests successfully surmounted gradients varying between one in nine and one in thirteen with as heavy a load as six and a half tons. Yet the judges found that the strength of these vehicles was "below what is compatible with a satisfactory life in commercial work"—a state of things which they attributed mainly to "the difficulties imposed by meeting the limit of three tons tare under the Locomotives on Highways Act, 1896." In order to see whether manufacturers could improve their designs so as to produce an efficient commercial vehicle under the three-ton limit of tare, the Liverpool Self-propelled Traffic Association has allowed an interval of two years between the second trials and the third series now about to be held. For the coming trials an entry of thirteen vehicles has been secured, which will compete in four classes. Class A is for comparatively light vehicles propelled by internal combustion engines using deodorised naphtha or petroleum spirit, and carrying a load of only one and a half tons. The vehicles entered under the other three classes are all steam propelled, electricity being again unrepresented. The steam waggons, however, comprise a great variety of design, including several boilers of the flash, or instantaneous generation, type.

THE Report of the Council of the Royal Agricultural Society of England, read at the annual meeting on Wednesday of last week, was not an altogether satisfactory one. The total number of governors and members is more than ten thousand, but since last year there has been a nominal reduction of 633—which includes 314 voluntary resignations. A few of these have withdrawn from the Society on account of the decision of the Council to discontinue the annual migratory shows after 1902, because of the serious losses the last three have involved. The show this year will be held at Cardiff, from June 26 to July 1, and in 1902 the last of the series will be held at Carlisle. These migratory shows will be superseded by a permanent showyard at Twyford Abbey—a few miles out of London. For the prizes of 40% and 20%, offered by the Society for portable oil engines, eight entries have been received, the trials of which will take place in the Cardiff showyard in the week previous to the show. For the similar prizes offered for agricultural locomotive engines, no entry has been received; and for the prize of 15% offered by the Society for the best small ice-making plant suitable for a dairy, only one entry has been made. The council report that at the Woburn Experimental Farm the feeding experiments have shown that sheep fatten perfectly well, and without any drawbacks, when fed on mangels instead of swedes. Gorse has been proved to be a useful food, but the results were slightly

inferior to those obtained by the use of hay. Progress is being made with the usual field experiments and with the investigations of various agricultural problems, including the eradication of farm weeds. At the pot-culture station experiments are being continued in connection with Hills' bequest. Much attention has been given to the value of seeds, and reports have been supplied to members of the Society in regard to the purity and germination of 116 samples of different seeds. A disease in the cherry orchards of Kent, which has seriously affected the cherry crop, has been investigated by the Society's consulting botanist, and a description and figures of the disease have been printed as a leaflet and extensively circulated in Kent and other fruit-growing districts. The Zoological Department has been chiefly concerned during the past six months with pests injurious to stored produce and with such insects as are troublesome all the year round. Some of the more important applications have had reference to forestry, and advice has been given with regard to various insects attacking plantations of coniferous and other trees.

A DISASTROUS explosion occurred at the Universal Colliery, situated at the top of Aber Valley, a few miles from Caerphilly, on Friday last, no less than eighty-three men having perished through the accident. Mr. Dyer Lewis, assistant inspector of mines, is reported by the *Times* to have said that there was no longer any doubt that the explosion was caused by coal dust, adding that the long continuance of the north-east wind, which practically prevailed for three weeks, might probably have had the effect of drying up the air passing through the workings and thus have caused the coal dust to become drier.

WE understand that the Admiralty is proceeding energetically with the fitting of wireless telegraphy to the ships of the British Navy. The "Apps-Newton" coil has been adopted as the standard pattern, and a large number of coils and transmitters have been ordered.

A COMPLETE installation of Marconi's wireless telegraphy specially suitable for signalling purposes as used in the Navy has been fitted on board the Elder, Dempster Beaver liner *Lake Champlain*. This installation is the first which has been fitted on any of the Atlantic liners sailing from Liverpool. The *Lake Champlain* left the Mersey for Halifax last Tuesday with more than 1000 passengers, and arrangements were made to establish communication between the vessel and the Marconi wireless telegraph station at Holyhead. The *Times* states that at 9.37 p.m., when off the Skerries, communication was obtained with the Holyhead station, the vessel being then thirteen miles distant. Numerous telegrams were then forwarded from passengers to friends in all parts of the United Kingdom, each message being acknowledged by the receiving operator. Constant communication with the station was continued until 1 a.m., the vessel being then thirty-seven miles distant. Communication was established with the Marconi station at Rosslare, and at 4.30 a.m. a fresh batch of telegrams was forwarded, notifying the vessel's arrival off the Tuskar light to the owners, Messrs. Elder, Dempster and Co. The position of the ship was nineteen miles from Rosslare telegraph station. The last telegram was forwarded at 7.30 a.m., at a distance of nearly thirty miles from Rosslare.

OUR paragraph directing attention to the proposal to erect a memorial to the late Right Hon. Prof. Huxley in Ealing has elicited one noteworthy response. The contributor, who gives neither name nor address, begins his covering letter: "In the current issue of NATURE" (which presumably he had seen at a free library) "the reader is informed of a movement on foot in Ealing for a memorial to the memory of Huxley. With gladness I hasten to contribute my mite," and concludes an able, if lengthy, epistle as follows: "I enclose a postal order for 1s.

as some *little* help towards the memorial. Even now I am giving beyond my means, as I am merely a casual dock labourer, living from hand to mouth, and often hardly able to make both ends meet. But I never let my mind get rusty, and from my boyhood have had a keen partiality for 'Nature's leading lights' and their works. Among the brightest of these, and of whom any nation might be justly proud, flashes out Thomas Henry Huxley."

THE *Procès-verbaux* of the meeting of the International Committee of Weights and Measures at Paris in September last have been received. The Committee had under their consideration the reports of the director on the work of their bureau for 1899-1900, by which reports it would appear that besides the ordinary verification work of the bureau (standard metres, kilograms and thermometers for various Governments, Universities and scientific authorities) important researches have been carried out as to alloys of nickel and steel (Dr. Guillaume); as to comparisons of platinum and hydrogen thermometers (Dr. Chappuis and Dr. Harker), and the determination of the mass of a cubic-decimetre of distilled water. Dr. Benoit reports that the latter mass may be taken as equivalent to 999'936 grammes; but it does not appear that the true value of a cubic-inch of water is to be derived from the cubic-decimetre. The best ordinary alloy for measures of length (as bars, line-measures, survey ribands, &c.) appears from Dr. Benoit's report to be one of 64·3 per cent. of steel and 35·7 per cent. of nickel.

We note that the Committee referred to in the foregoing note propose to take up the vexed question of an international series of sizes of screw-threads, based on the millimetre. The annual expenditure of the Committee amounts at present to 75,000 francs, but it would appear that at the general conference to be held at Paris in October next, under the Metric Convention 1875, a proposal is to be made to raise the annual budget to 100,000 francs, at which sum it was formerly fixed, so as to meet necessary expenditure on the instrumental equipment and maintenance of the bureau. Towards this annual expenditure each High Contracting State contributes a sum based on its population, and on the extent to which the metric system may be in force within each country; Great Britain contributes about 5000 francs. Some effort appears to have been made in September last by the Decimal Association (London) to induce the Committee to lay before the French Government a proposition to invite the attention of the Governments of Great Britain, Russia and the United States to the desirability of making the metric system compulsory in these countries; but the Committee do not appear to have approached the French Government on this delicate proposition. From the communications addressed to the Committee by Prof. A. Michelson (Chicago), Mr. Chaney and Prof. Mendeléeff, it seems that the metric system is, however, making way in the three great countries above mentioned.

Die Umschau contains a short account of Hoffmann's model flying-machine. The peculiarity of this model (which weighs $3\frac{1}{2}$ kilogrammes) is that it is supported on three long legs, by the aid of which it runs on wheels on a track or on the ground till it has gained sufficient velocity to rise in the air, when the legs fold up automatically and the model flies somewhat after the manner of a stork. It is claimed that such an arrangement applied to a man-lifting machine would obviate the difficulties connected with the starting and landing.

WE have received a copy of the magnetical, meteorological and seismological observations made at the Government Observatory, Bombay, for the years 1898 and 1899, under the direction of Mr. N. A. F. Moos, which extends the record of this important series to a period of fifty-four years. The observatory is very completely equipped both with ordinary and self-record-

ing instruments, the standards being read five times daily, commencing with 6h. a.m. A Dines' pressure tube anemometer, probably the most satisfactory instrument for recording the varying strength of the gust of wind, was erected in February 1897, and a Milne's seismograph in September 1898. In addition to the tables of results obtained from the automatic instruments and from the direct eye observations, the volume contains the following valuable appendices:—(a) Hourly means of the magnetic elements, as determined from quiet days, for the years 1894-9; (b) Notes on the harmonic analysis of temperature and pressure for 1876-1895, with plates; (c) Hourly and daily normals of the several meteorological elements, and their variations expressed by Bessel's formula.

WE have received from Mr. J. Baxendell, meteorologist to the Southport Corporation, the report and results of observations at the Fernley Observatory and allied stations for the year 1900. With a small amount of means at their disposal, Mr. Baxendell and his staff perform a large amount of very useful work, much of it of an experimental kind, in addition to the routine work of a well-equipped observatory. Special attention is given to the results of various anemometers of the most modern construction, and it is stated that the highest pressure yet recorded by a pressure plate anemometer is 20·7 lbs. per square foot. Another useful investigation is the comparison between the amounts of bright sunshine recorded by the Campbell-Stokes and the Jordan sunshine recorders. The monthly percentages of three years show that the latter instrument records somewhat higher values, except in the winter months. The falling off at this period appears to be traceable to increased relative humidity and to greater prevalence of fog. The report contains useful tables of rainfall and sunshine values at a considerable number of stations—mostly sea-side resorts.

THE third sheet of the North Atlantic and Mediterranean Pilot Charts published by the Meteorological Council is devoted to the month of June. Being the midsummer month, the atmospheric conditions are usually of the quietest description, the region in which the gale frequency exceeds 10 per cent. being now limited to the far north, beyond the 55th parallel. Disturbances of a cyclonic character are, however, of frequent occurrence on the more frequented shipping routes, but as most of them are of slight intensity severe gales seldom result. At this season, the conditions begin to assume a less steady appearance in the doldrums off the African coast, developing later into conditions which give birth to hurricanes moving westward towards the West Indies. Similar local features of the winds on the American coasts and in the Mediterranean are dealt with. Fog is very frequent, above 50 per cent., from the coast of Maine eastward across the Newfoundland Banks, and even the 10 per cent. frequency extends, with only a narrow break in about 20° W., from Sandy Hook to the Severn and the Bay of Biscay. Fogs as dense and as wet as those of the Banks now visit the Straits of Gibraltar, but, fortunately, they last only a few hours. With the exception of a berg and some field ice sighted on March 16 last, there has been no report of ice at sea this year, though at various times the pack in some of the Newfoundland and Cape Breton bays has been driven out by high winds. The eastward drift of the Gulf Stream, which the May chart showed was interrupted in 47° N. 27° W., continues across the ocean to our south-western shores in June, there being a good deal of easterly and north-easterly current in the space between Ireland and the north-west of Spain. The equatorial counter-current of the doldrums is met with as a prevailing set as far west as the 42nd meridian; the equatorial west-going current attains a high velocity, 60 to 85 miles a day; and in Florida Strait the Gulf Stream may reach 100 miles in a day. In every way the June chart is as interesting and valuable as its predecessors.

WE have received from Messrs. Friedländer the second part of their valuable *International Zoologist's Directory*, containing the emendations and additions necessary to bring the issue of 1895 up to date. These emendations include a list of zoologists deceased since that date, as well as a record of all changes of address that could be ascertained. The lists of the staffs of all the more important zoological institutes and museums form a feature of this part; and, so far as we have been able to test it, the work is comprehensive and singularly free from errors.

THE only original article in the May issue of the *Zoologist* is a continuation of Mr. E. Selous' observations on the habits of the great crested grebe. The author expended a vast amount of time and trouble in watching a pair of these beautiful birds during the breeding season. Attention is drawn to the circumstance that the male bird takes a considerable share in the duties of incubation; and it is suggested that it likewise constructs a platform for its own use in the neighbourhood of the nest. This leads the author to formulate a theory as to the origin of the "runs" of the Australian bower-birds, which, in opposition to the views of other naturalists, he regards as specially modified nests.

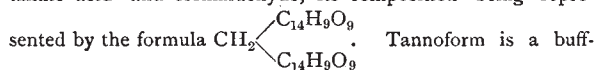
DR. A. APPELLÖF sends us the first fasciculus of a new work under his editorship, entitled "Meeresfauna von Bergen," now in course of publication by the Bergen Museum. The systematic investigation of the marine fauna of Bergen was commenced many years ago, and since the establishment there of a marine biological station has advanced with great rapidity. Many interesting problems are connected with the fauna of the sea of this district, which is now to be described in considerable detail. The work will include a map showing the different faunal zones and dredging stations. In the present fasciculus Mr. K. Bonnevie, of Christiania, treats of the hydroid polyps, Dr. R. Hartmeyer of the holosomatous ascidians, and Mr. E. Arnesen of the calcareous sponges. The first two subjects are illustrated with plates or figures, and the names of the authors afford a sufficient guarantee of the manner in which each is treated.

WE have received numbers 6 and 7 of the Liverpool Marine Biological Committee's *Memoirs*, both of which maintain the high level of their predecessors. The first of these, by Mr. A. Scott, is devoted to the fish-parasites of the genera *Lepeophtheirus* and *Lernæa*. These crustacean (copepod) parasites are almost wholly restricted to portions of the fish they infest which are in direct communication with the exterior, such as the skin itself, the fins, mouth, gill-chamber and gills, nostrils, or even the eye. The full life-history of both the types mentioned is given in considerable detail; and it is shown that while in the former development takes the form of steady progression, in the latter it assumes an equally marked degradation. Indeed, so strange are the phases assumed by *Lernæa* (as is well shown in the plates with which the memoir is illustrated), that there is little wonder that the older naturalists, when its life-history was still unknown, were puzzled as to its serial position, and failed to recognise its near kinship to the other genus described in the present fasciculus. The second of the two *Memoirs*, by Mr. R. C. Punnett, deals with the genus *Lineus*, as exemplified by that common British nemertean worm, *L. gessnerensis*, notable, if for no other reason, on account of having, in its different phases, received no less than ten generic and thirteen specific titles. Varying between 6 and 20 centimetres in length, and displaying two distinct colour phases, this worm occurs abundantly underneath stones between tide-marks and also in the laminarian zone, frequently occurring in tangled masses. Its distribution is also large, extending from Greenland to Madeira on one side of the Atlantic and to Florida on the other. In addition to a careful and well-illustrated description of its anatomy and life-history, Mr. Punnett

furnishes his readers with an elaborate table, showing at a glance the exact systematic position of this curious worm.

THE Summary Report of the Geological Survey of Canada for 1900 has a melancholy interest for geologists owing to the recent death of Dr. G. M. Dawson, the Director. It is a clearly printed work of 203 pages, with a colour-printed map of the Atlin gold-fields, and its price is ten cents. As usual, while due attention is given to the scientific work the practical subjects are treated as exhaustively as possible, and general observations on natural history are included. So many different topics are discussed that it is impossible to give any condensed account of them; suffice it to say that the Yukon district with its gold and coal workings, the coal of British Columbia and Nova Scotia, the lakes of Ontario and New Brunswick, the finding of natural gas in borings in the valley of the Nation river, the anorthosite of Quebec, and numerous other matters are dealt with.

WE have received from Messrs. Merck a pamphlet upon "Tannoform," an antiseptic which has lately been very much employed in veterinary practice. This substance was first prepared about six years ago, and is a condensation product of tannic acid and formaldehyde, its composition being represented by the formula



Tannoform is a buff-coloured powder and is odourless and almost tasteless. It is insoluble in water, but fairly soluble in alcohol and ether, also in caustic alkalis and ammonia. Formaldehyde is one of the most powerful antiseptics and germicides which we have, but being at the same time a strong irritant it can only be used in very dilute solutions. Tannoform appears to possess all the antiseptic properties of formaldehyde, but is free from its unpleasant smell and irritating action, beside which the well-known astringent properties of tannic acid are also retained. Owing to its anhydrotic action, this substance was at first chiefly employed as a remedy for excessive perspiration of the feet and other parts of the body. Tannoform appears to have been first employed for veterinary purposes in the veterinary college of Berlin, when it was found that, not only could it be employed in place of the unpleasant smelling and expensive iodoform, but that wounds treated with it healed more rapidly than when iodoform was used. In cases of purulent and malodorous wounds, tannoform is said to be very beneficial, because of its antiseptic and deodorising properties. When taken internally, this substance appears to be quite harmless, even when large doses are administered. It has been found of special value in cases of diarrhoea and intestinal catarrh. Most antiseptics carry with them an odour—not usually pleasant—by means of which their presence can be detected. In tannoform we have an odourless and powerful antiseptic.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus* ♂) from India, presented by Mr. T. J. Erroll; a Guinea Baboon (*Cynocephalus sphinx* ♂) from Africa, presented by Mr. C. W. Fowke; a Grey Ichneumon (*Herpestes griseus*) from India, presented by Lord Hindlip; a Guilding's Amazon (*Chrysotis guildingi*) from St. Vincent, presented by the Earl of Crawford and Balcarres; a Woolly Opossum (*Didelphys lanigera*) from Colombia, a Violet-necked Lory (*Eos ricinata*) from Moluccas, a Razor-billed Curassow (*Mitua tuberosa*) from Guiana, deposited; a Demoiselle Crane (*Anthropoides virgo*) from North Africa, two Summer Ducks (*Ex sponsa* ♂ ♂) from North America, two Mandarin Ducks (*Aix galericulata* ♂ ♀) from China, an African Elephant (*Elephas africanus* ♂) from Abyssinia, purchased; a Duke of Bedford's Deer (*Cervus xanthopygius* ♀) a Japanese Deer (*Cervus sika* ♂) a Thar (*Hemitragus jemlaicus* ♂) born in the Gardens.